GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Production Systems Components, PG_00055504		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Piotr Sender	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	8.0	37.0	75

Subject objectives

Principles of using of universal fixtures. Designing of special fixtures.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] is able to perform a critical analysis of the existing technical solutions, present the specification of the technology of manufacturing basic construction elements of machines and engineering assemblies	Principles of calculating the forces fixing the workpiece in the machining fixture.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_U08] is able to design a technological manufacturing process for typical elements of machines or devices, using analytical and numerical calculating tools	Rules for using the modular fixtures and design of special holders.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_W11] possesses knowledge on design, technology and manufacturing of machine parts, metrology, and quality control; knows and understands methods of measuring and calculating values describing the operation of mechanical systems, knows calculating methods applied to analyse the results of experiments	Rules for using of universal fixtures.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation

Subject contents

LECTURE: The role of tooling in the machine parts manufacturing system. Errors affecting the accuracy of execution in the fixtures. Arrangement the workpieces in the fixtures. Fixing the workpieces in the fixtures. Fixing and mounting the fixturing equipment in the machine tool. Rules for designing of fixtures: lathe fixtures, drill fixtures, milling fixtures, modular fixtures. Tool holders. Fixing accessories. Equipment for transport, manipulators and robots. Principles of computer design and management of workshop aids. principles of using universal fixtures. Tooling costs. Calculation of clamping forces.

LABORATORY (computer): Acquisition of the ability to apply the principles of basing and fixing workpieces in fixtures in practice and designing a machining fixtures for the indicated operation.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Knowledge in the field of preparing of construction and machine technology's drawings.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Written test</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Design of fixture</td><td>60.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Feld M.: Machining fixtures. WNT, Warssaw, 2002.Dobrzański T.: Machining fixtures. Constructor's guide., WNT,Warszawa, 1987.Standards</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Engineer's handbook. Machining. Volume I-III, WNT, Warsaw 1993.

Manufacturers Catalogs.

Studying studies (books, presentations, lectures) from Polish and foreign technical universities.</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Describe fixture used on lathes and milling machines.

Describe ways to calculate fixturing forces.

List the principles of construction of turning and milling machining equipment.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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